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(54) **Title of the Invention:** Video Signal Recording Device

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(71) **Applicant:** 000002185
Sony Corporation
6-7-35 Kita-shinagawa, Shinagawa-ku, Tokyo
(72) **Inventor:** ENDO, Naoki
Sony Corporation
6-7-35 Kita-shinagawa, Shinagawa-ku, Tokyo
(74) **Agent:** Patent Attorney, TANABE, Shigeki

(57) **[Abstract]**
[Object] The present invention improves the usability of video signal recording devices, such as built-in camera video tape recorders, when filming using a wireless mic, by preventing [situations] such as those wherein one forgets to turn off the wireless mic.
[Constitution] The present invention is such that ON/OFF control of the wireless mic power is performed using remote control means.

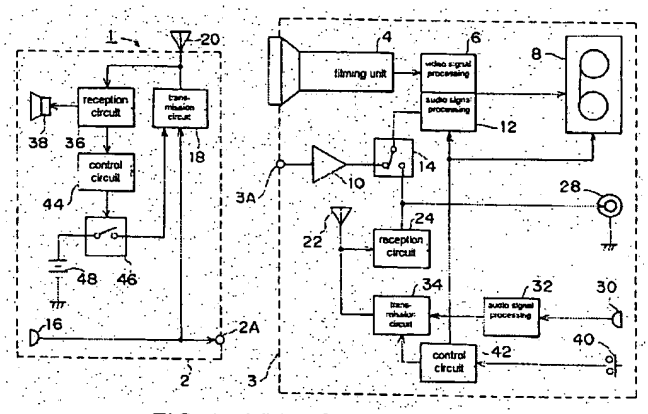

FIG. 1 Video Tape Recorder

[CLAIMS]
[Claim 1] A video signal recording device characterized by comprising: remote control means for performing ON/OFF control of the power of a wireless mic; audio signal receiving means for receiving a transmission signal transmitted from said wireless mic and demodulating the audio signal from said wireless mic; filming means for filming a predetermined photographic subject and outputting a video signal for said photographic subject; and recording means for recording said video signal and said audio signal on a predetermined recording medium.
[Detailed Description of the Invention]
[0001]
[Field of Industrial Application] The present invention relates to a video signal recording device and can be applied, for example, to a built-in camera video tape recorder.
[0002]
[Prior Art] Conventionally, built-in camera video tape recorders are [known] wherein an audio signal can be recorded using a wireless mic so that a clear audio signal can be recorded, even when filming a photographic subject that is far away.
[0003] Such built-in camera video tape recorders are capable of recording the natural behavior of the photographic subject, because they allow for clearly recording the audio signal when filming without attracting the attention of, for example, children.
[0004]
[Problems to Be Solved by the Invention] However, there are cases in which, when filming a photographic subject who is [wearing] the wireless mic, one wishes to film another photographic subject, other than this photographic subject.
[0005] But there is a problem in that, when filming the other photographic subject in this case, the sound from the photographic subject who is [wearing] the wireless mic will be recorded as the audio signal.
[0006] Furthermore, when a wireless mic of this sort is used, it is possible to forget to turn off the wireless mic, so that the batteries are needlessly consumed, and when one actually decides to film, it is not possible to record the audio signal because the batteries have run out.
[0007] The present invention takes into consideration the points described above and is [thus] directed at proposing a video signal recording device capable of improving usability when filming using a wireless mic.
[0008]
[Means for Solving the Problems] In order to solve such problems, the present invention comprises: remote control means 22, 34, 40, 42 for performing ON/OFF control of the power of a wireless mic 2; audio signal receiving means 22, 24 for receiving a transmission signal transmitted from the wireless mic 2 and demodulating the audio signal from the wireless mic 2; filming means 4 for filming a predetermined photographic subject and outputting a video signal for the photographic subject; and recording means 6, 12 for recording the video signal and the audio signal on a predetermined recording medium 8.
[0009]
[Operation] If ON/OFF control of the power of the wireless mic 2 is performed by remote control, using the remote control means 22, 34, 40, 42, it is possible to record the audio signal from the wireless mic 2 by operating the remote control means 22, 34, 40, 42 as necessary. Furthermore, if the remote control means 22, 34, 40, 42 are operated in conjunction with the recording means 6, 12, as necessary, it is possible to prevent the power from being accidentally left on.
[0010]
[Embodiments] Hereinafter, one embodiment of the present invention is described in detail with reference to the drawings.
[0011] In FIG. 1, [reference numeral] 1 indicates an entire built-in camera video tape recorder, in which, while recording a video signal, a main unit 3 of the built-in camera video tape recorder records an audio signal from a wireless mic 2.
[0012] In other words, in the main unit 3 of the built-in camera video tape recorder, a desired photographic subject is filmed by a filming unit 4, and the video signal for this photographic subject is converted to a recording signal by a video signal processing circuit 6. As a result, it is possible to record a video signal for this photographic subject on a magnetic tape housed in a tape cassette 8, in the main body 3 of the built-in camera video tape recorder.
[0013] Furthermore, in the main unit 3 of the built-in camera video tape recorder, an audio signal is input by way of an audio signal input terminal 3A, and this audio signal is amplified by an amplification circuit 10. Furthermore, in this main unit 3 of the built-in camera video tape recorder, this audio signal is applied to an audio signal processing circuit 12, by way of a selection circuit 14, wherein it is converted to a recording signal. Consequently, it is possible to connect a wireless mic 2 or the like to the audio signal input terminal 3A, so as to record an audio signal in the main unit 3 of the built-in camera video tape recorder.
[0014] Here, in the wireless mic 2, an audio signal is picked up by a microphone 16, and this audio signal can be output by way of an audio signal output terminal 2A. Consequently, in this built-in camera video tape recorder 1, it is possible to output the audio signal from the wireless mic 2 directly to the main unit 3 of the built-in camera video tape recorder, by connecting the audio signal output terminal 2A to the audio signal input terminal 3A.
[0015] Furthermore, in the wireless mic 2, the audio signal from the microphone 16 is applied to a transmission circuit 18, where it undergoes frequency modulation and is output to an antenna 20; consequently it is possible to transmit the audio signal to the main unit 3 of the built-in camera video tape recorder even if the audio signal output terminal 3A is not connected. In a corresponding manner, in the main unit 3 of the built-in camera video tape recorder, the audio signal from the wireless mic 2 is received by an antenna 22, subsequently demodulated by a reception circuit 24 and output to a selection circuit 14.
[0016] Consequently, in the main unit 3 of the built-in camera videotape

recorder, by switching between contacts in the selection circuit 14, it is possible to record an audio signal received by the antenna 22 in place of an audio signal input by way of the audio signal input terminal 3A.

[0017] Furthermore, in the reception circuit 24, the demodulated audio signal is output to an earphone jack 28, whereby it is possible to monitor the audio signal from the wireless mic 2 as necessary from the main unit 3 of the built-in camera video tape recorder.

[0018] Furthermore, in this embodiment, the main unit 3 of the built-in camera video tape recorder is such that sounds from a camera operator are picked up by a microphone 30 and any resulting audio signal is amplified by an audio signal processing circuit 32. Furthermore, the main unit 3 of the built-in camera video tape recorder modulates the output signal from this audio signal processing circuit 32 with the transmission circuit 34 and transmits it by way of the antenna 22.

[0019] In a corresponding manner, in the wireless mic 2, the audio signal transmitted from the built-in camera video tape recorder 3 is received by the antenna 20 and fed to a reception circuit 36, wherein the audio signal is demodulated. Consequently, it is possible for the photographic subject to monitor the voice of the camera operator with the wireless mic 2, by outputting this audio signal to an earphone 38.

[0020] Accordingly, it is possible for the camera operator to give various instructions to the photographic subject without interrupting the operations of the main unit 3 of the built-in camera video tape recorder, whereby it is possible to improve the usability of this built-in camera video tape recorder 1.

[0021] Furthermore, in the main unit 3 of the built-in camera video tape recorder, a control circuit 42 controls the operation of the entire main unit 3 of this built-in camera video tape recorder while controlling the power to the wireless mic 2.

[0022] In other words, the control circuit 42 is such that, in monitor mode, if predetermined operating elements are pressed, a control signal is output to the transmission circuit 34, whereby a remote control signal is transmitted by way of the antenna 22. In a corresponding manner, in the wireless mic 2, the remote control signal is demodulated by the reception circuit 36 and any resulting control signals are output to the control circuit 44. The control circuit 44 performs ON/OFF control of a switch circuit 46 in response to this control signal; and the switch circuit 46 supplies power from a battery 48 to the transmission circuit 18.

[0023] Consequently, in the main unit 3 of the built-in camera video tape recorder, when monitoring mode has been specified, ON/OFF control of the transmission circuit 18 can be performed by repeatedly pressing an operating element 40.

[0024] Accordingly, the camera operator can monitor sounds from the photographic subject using the wireless mic 2, by pressing this operating element 40 as necessary. Consequently, the camera operator is, for example, able to operate the main unit 3 of the built-in camera video tape recorder while monitoring the voice of a child who is the photographic subject, to selectively record scenes which will be enjoyable to replay later or the like, which allows for improvement of usability of the built-in camera video tape recorder 1.

[0025] Furthermore, if the operating mode is set to selection mode, the control circuit 42 performs ON/OFF control of the power of the wireless mic 2 in response to pressing of the operating element 40, while the contacts of the selection circuit 14 are switched in conjunction with this ON/OFF control. Consequently, in this built-in camera video tape recorder 1, it is possible to selectively use the wireless mic 2 and a separate microphone, by connecting this microphone to the audio signal input terminal 3A as necessary.

[0026] Accordingly, if, in the middle of filming a distant photographic subject who is wearing the wireless mic 2, one [wishes to] film a nearby photographic subject, it is possible to switch the sound by the simple operation of pressing the operating element 40, which allows for a corresponding improvement in the usability of the built-in camera video tape recorder 1.

[0027] At this time, in the wireless mic 2, by switching the power to the OFF state in conjunction with switching between the contacts of the selection circuit 14, it is possible to prevent the consumption of batteries that accompanies accidentally leaving the power on, even if the camera operator finishes using the built-in camera video tape recorder 1 immediately after filming the nearby photographic subject, which allows for a corresponding improvement in the usability of the built-in camera video tape recorder 1.

[0028] Furthermore, if normal mode is selected, the control circuit 42 switches the switch circuit 46 to the ON state in response to operating the record-start operating element; while conversely, in response to operating the record-stop operating element, this switch circuit 46 is switched to the OFF state. Consequently, it is possible to prevent consumption of the battery 48, even if the camera operator forgets to turn off the power switch of the wireless mic 2, which allows for a corresponding improvement in the usability of the built-in camera video tape recorder 1.

[0029] By virtue of the constitution described above, by performing ON/OFF control of the power of the wireless mic 2 with the main unit 3 of the built-in camera video tape recorder, it is possible to record the audio signal from the wireless mic 2 as necessary and to prevent this wireless mic 2 from being accidentally left on, which allows for a corresponding improvement in the usability of the built-in camera video tape recorder 1.

[0030] Note that, in the embodiment described above, a case in which ON/OFF control of the power of the wireless mic 2 is performed in various modes was described, but the present invention is not limited thereto, and if necessary only a single mode may be provided or various further separate modes may be provided.

[0031] Furthermore, in the embodiment described above, a case was described wherein the present invention was applied to a built-in camera video tape recorder, but the present invention is not limited thereto, and can be broadly applied to video signal recording devices such as electronic still cameras.

[0032]

[Effects of the Invention] As described above, by virtue of the present invention, by performing ON/OFF control of the power of a wireless mic by remote control, it is possible to record an audio signal from the wireless mic as necessary, and it is possible to prevent this wireless mic from being accidentally left on, which allows for a corresponding improvement in the usability of the video signal recording device.

[Brief Description of the Drawings]

[FIG. 1] is a block diagram illustrating a built-in camera video tape recorder according to one embodiment of the present invention.

[Explanation of the Reference Numerals]

1 built-in camera video tape recorder
2 wireless mic
3 main unit of built-in camera video tape recorder
16, 30 microphones
42, 44 control circuits
46 switch circuit
48 battery

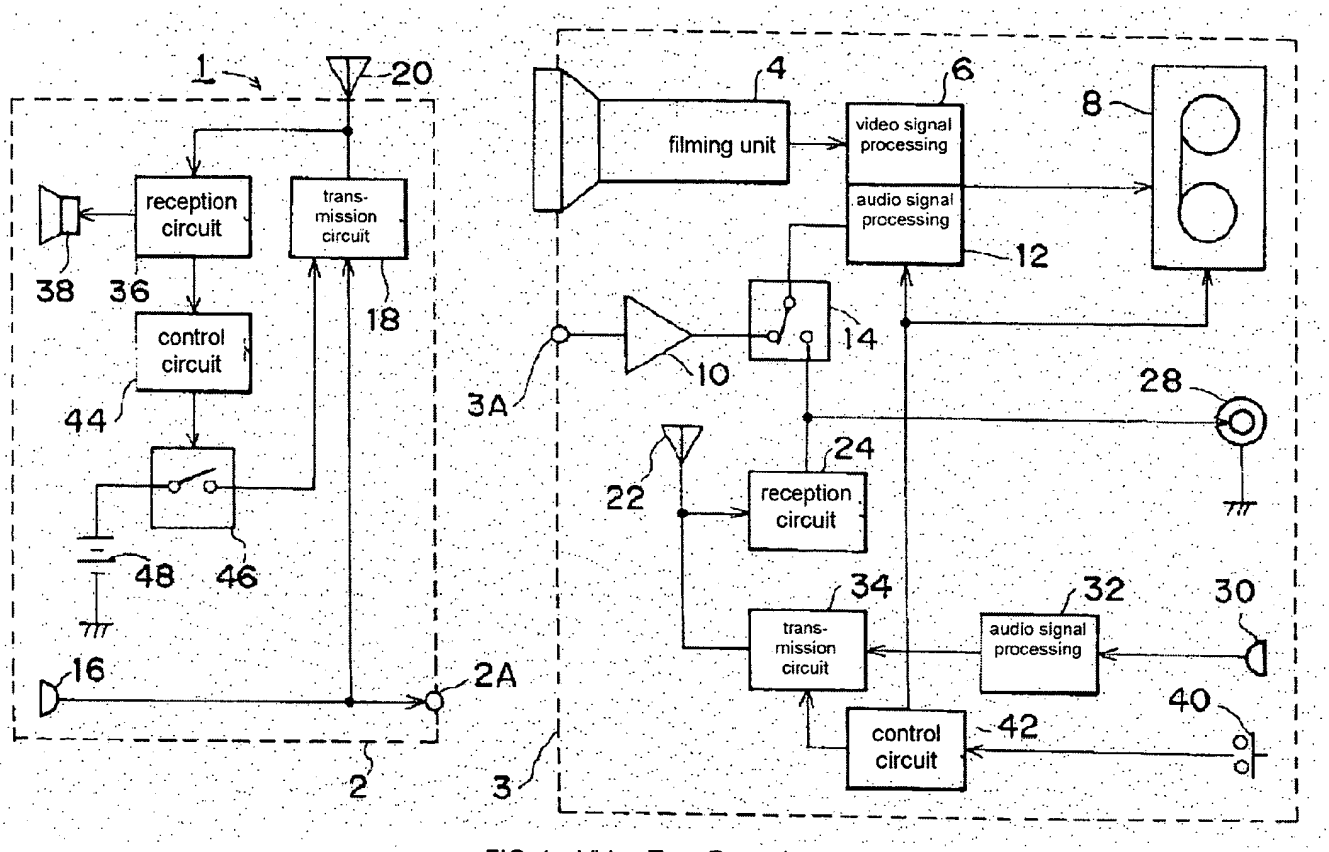

FIG. 1 Video Tape Recorder